

Digital buyer exposure and supplier commitment in the global south: A field experiment on the role of racial dynamics

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ABSTRACT

Through a controlled field experiment in Uganda, this study investigates the impact of digital buyer exposure on smallholder farmers' commitment to selling coffee flowers in the context of socially responsible global supply chains. It addresses how digital buyer exposure influences supplier commitment and whether racial dynamics moderate this relationship. Working from the assumption that the suppliers' commitment is critical to improving their livelihood, the paper contributes to how racial concerns can be mitigated in global socially responsible supply chains; this is an ignored field in SCM. By comparing farmers exposed to a buyer video with those in a control group, the experiment uses randomization and addresses confounding factors, such as the Hawthorne effect and parallel trends, to ensure the robustness of its findings. Findings reveal that digital buyer exposure significantly increases farmers' willingness to commit, while racial dynamics play a smaller but notable role in shaping initial perceptions. However, these dynamics do not significantly diminish the positive impact of digital exposure. This suggests that digital tools effectively foster early-stage supplier commitment and relational alignment between buyers and suppliers in regions where direct interactions are limited and where distrust between buyers and suppliers constrains suppliers' opportunities to leverage the potential advantages of becoming integrated into socially responsible supply chains. The study thereby contributes to the existing literature by demonstrating the potential of digital technology to strengthen supplier commitment and mitigate the negative effects of racial dynamics.

1. Introduction

While conventional global supply chains are often exploitative in nature (LeBaron and Lister, 2021; Karaosman et al., 2025; Tsing, 2009), global socially responsible supply chains are essential drivers of economic development, linking diverse stakeholders across regions and fostering interconnected markets (Glusshova et al., 2019). Inspired by Pagell and Shevchenko (2014) and Montabon et al. (2016)'s critique of sustainability research in the SCM field, global socially responsible supply chains are defined as global supply chains orchestrated (Pitelis and Teece, 2018) by social enterprises (Battilana and Dorado, 2010) committed to regenerative practices (Pagell and Wu, 2024). Regenerative practices mean that "a supply chain would at worst do no net harm to natural or social systems while still producing a profit over an extended period" (Pagell and Wu, 2009). However, for suppliers in the

Global South, benefiting from global socially responsible supply chains hinges on overcoming persistent trust barriers in buyer-supplier relationships. These barriers are rooted in suppliers' prior experiences with exploitative practices in conventional supply chains (Uddin et al., 2023; LeBaron, 2021; Tsing, 2009; Uddin, 2025) and historical legacies of colonialism (Stevano, 2023).

While existing literature on supplier development highlights the value of trust-building mechanisms, communication, and expectation alignment (Patrucco et al., 2020; Yenyurt et al., 2014; Handfield et al., 2015; Patrucco et al., 2024), it often overlooks structural constraints such as the lack of direct buyer-supplier interactions and the sociocultural and racial dynamics that intensify these constraints in the Global South. Notably, racial identity remains an underexamined dimension of supply chain relationships (Esper et al., 2020; Blount and Li, 2021; Aral & Van Wassenhove, 2025). The use of video and other digital tools in

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responsible sourcing has grown, but findings about their efficacy are mixed. Video technology is assumed to improve transparency and build trust in remote supplier development programs, yet recent behavioral evidence suggests it may also exacerbate implicit biases. Aral and Van Wassenhove (2025) found that buyers were significantly less likely to select suppliers when the sales manager had a distinctively Black name in a video-based sourcing scenario, despite identical proposals. This challenges assumptions about neutrality in digital procurement and points to the need for more nuanced understanding of how race and digital visibility interact. Further, Ta et al. (2024) show that trustworthiness in supply chain relationships is influenced by both surface-level (e.g., race, gender) and deep-level (e.g., values, capabilities) perceptions of fit. Their research introduces the concepts of supplementary and complementary fit, showing that individuals evaluate partners through lenses of both similarity and value-adding difference. Similarly, Esper et al. (2020) and Blount and Li (2021) emphasize that race is not merely a demographic variable but a meaningful construct that shapes relational dynamics, trust, and economic outcomes in supply chains. The literature on supplier diversity consistently finds that despite stated commitments, actual expenditures with ethnic minority businesses remain low, suggesting disconnects between intention and practice, particularly when interpersonal exposure is limited. Literature raise a critical question: How does digital buyer exposure influence supplier commitment in globally socially responsible supply chains, and to what extent do racial relationships moderate this relationship? This question is particularly urgent given the increasing use of video in responsible sourcing initiatives in the Global South, often involving suppliers from Black and Indigenous communities. The purpose of this paper is to investigate how digital buyer exposure impacts supplier commitment in the context of a global socially responsible supply chain and how racial dynamics moderate this relationship. Buyer exposure, whether direct or digital, has been shown to improve communication, foster trust, and align goals (Belonax Jr. et al., 2007; Ambrose et al., 2008). However, its role in digitally mediated, racially diverse contexts remains under-theorized and empirically unclear. This study uses a controlled field experiment in Uganda to compare smallholder farmers who were exposed to a buyer video with those who were not. The experiment is embedded within a real-world supplier development program led by a Western social enterprise and supported by a European development ministry. The program aims to promote regenerative coffee practices and develop new income streams, especially for women, through the commercialization of coffee flowers. The interventions were delivered by a local African team, while the buyer featured in the video was Caucasian. This setup enables an authentic examination of sociocultural and racial nuances within buyer-supplier dynamics.

The remainder of the paper is organized as follows: Section 2 reviews the relevant literature and develops the hypotheses. Section 3 outlines the methodology, including experimental design and data collection. Section 4 presents the results, followed by a discussion of findings, implications, limitations, and future research in Section 5. Section 6 concludes the study.

2. Literature review

This section reviews research on supplier development, digitalization, and racial dynamics in global supply chains, with particular attention to socially responsible practices in the Global South. Although corporate social responsibility (CSR) and sustainable supply chain management have been widely examined (Feng et al., 2017; Wilhelm and Villena, 2021; Seuring and Müller, 2008; Koberg and Longoni, 2019; Touboulis and Walker, 2015), limited attention has been paid to how digitalization, race, and supplier development intersect, especially in contexts where social enterprises pursue regenerative objectives (Pagell and Wu, 2009, 2024).

2.1. Supplier development in the global south

Supplier development is defined as supplier activities aimed at improving supplier performance, capacity, and ability to meet the expectations of buyers (Meinlschmidt et al., 2018; Hasle and Vang, 2021; Toufighi et al., 2024a; Toufighi et al., 2024b). In the Global South the same efforts are determined by infrastructural constraints, financial constraints, and institutional fragility, often compounded by historical legacies of colonialism and economic marginalization (Tsing, 2009; Stevano, 2023; Gao et al., 2023). Factors such as these also complicate market access and can impact on suppliers' view of potential external buyers. Within this backdrop, social enterprises emerge as critical players. Unlike traditional multinationals, they are pursuing dual economic and social goals (Balslev and Vang, 2024) and frequently embed regenerative principles within supply chain practices (Pagell and Wu, 2009, 2024). Instead of transactional governance, these organizations promote relational engagement and trust-building measures for long-term partnerships with smallholder suppliers.

2.2. Digitalization in buyer-supplier relationships

Digitalization is transforming buyer-supplier engagement, especially across geographically divergent supply chains. Information exchange, value sharing, and uncertainty reduction through video introductions and online platforms in circumstances of limited face-to-face interaction have already been shown in research studies (Bonatto et al., 2020; Bonatto et al., 2022; Manser Payne et al., 2017). Digital buyer exposure, in other words, the mediated interaction between suppliers and buyer representatives, can operate as an indicator of the buyer's level of commitment, assurance, and economic opportunity (Narasimhan and Nair, 2005; Poppo et al., 2016). From a signaling point of view (Spence, 1973; Connelly et al., 2011), actions that should be visible, such as video-based communication help to lessen informational asymmetries by providing credible signals about the buyer's integrity and commitment. Recent studies showed that, among other things in cross-organizational contexts, digital signals might alter the perception of transparency and trustworthiness (Thomas et al., 2021; Latif and Vang, 2021). Nevertheless, the way in which signals are interpreted is context-dependent and can be influenced by sociocultural filters (Frimpong et al., 2021).

2.3. Racial dynamics in supply chain relationships

In global supply chains, the interactions between majority White purchasers and racially diverse suppliers tend to mirror power asymmetries of different kinds and historical inequalities (McCarthy et al., 2018; Zoogah et al., 2015). Such asymmetries impact perceptions about fairness, legitimacy, and trust and, crucially, drive willingness to engage in exchange relationships. Esper et al. (2020) claim that race continues to be an understudied yet important dimension of supply chain interactions. Empirical evidence underscores the behavioral implications of racial cues. Blount and Li (2021) highlight that attitudes toward supplier diversity may drive actual spending behavior; moreover, Aral and Van Wassenhove (2025) find that racial identity can affect buyer choice decisions even when other attributes are constant. Racial identity in postcolonial contexts of the Global South intersects with narratives of exploitation and lack of trust (Tsing, 2009; Stevano, 2023), which might further influence reception of digital signals. Suppliers might not separate traditional corporations from socially oriented enterprises (Zoogah et al., 2015), and these only fuels suspicion from the outset. More surface-level cues (such as race) may play a stronger effect on initial impressions than deeper value alignment (Ta et al., 2024), with studies of diversity and perceived fit supporting such a case.

2.4. Diversity, perceived fit, and signal effectiveness

While recent studies highlight the differences between surface-level cues, such as race and gender, and deep-level alignment, such as shared values and goals, that influence the formation of trust (Ta et al., 2024). Surface-level characteristics are usually processed quickly in early interactions and may shape perceptions of similarity and legitimacy prior to appraising deeper relational features. In a digitally mediated environment, where interaction is limited to visual and verbal cues, surface signals such as racial identity may become especially salient. By signaling social distance, racial identity may influence how economic and relational signals are interpreted. In these contexts, the lack of apparent supplementary fit could weaken otherwise credible digital signals. However, signaling theory indicates that salient economic incentives with strong informational clarity can override surface-level heuristics (Spence, 1973; Connelly et al., 2011). The dynamic of surface-level perception versus economic signal strength sparks empirical analyses into racial asymmetry as a likely boundary condition in digitally mediated supplier development.

2.5. Research gap and contribution

Even though there is a growing trend in adopting digital tools in supplier development processes, only a limited number of studies have focused on how racial identity influences the reception and effectiveness of digital signals in socially responsible supply chains. Although relational and signaling theories offer a strong theoretical basis for investigating trust and commitment, these paradigms have rarely been jointly applied to racially diverse, digitally mediated contexts in the Global South. This research fills these gaps by experimentally investigating the effect of digital buyer exposure on supplier commitment and the degree to which racial asymmetry attenuates this association. Grounded in relational and signaling perspectives, including racialized interpretation of digital supplier development, this study adds to more context-sensitive and inclusive approaches to global supply chain governance. By examining the interplay between digital signaling and racial dynamics, this study addresses two critical gaps in the literature: (1) the extension of signaling theory to include digital mechanisms in trust-building and (2) the incorporation of racial asymmetries into relational contracting theory. The findings will provide a deeper understanding of how abstract mechanisms like signaling and relational governance operate in digitally mediated and cross-cultural supply chain contexts, contributing to the theoretical foundations of supply chain management

2.6. Hypothesis development

Supplier development is a cornerstone of socially responsible supply chain management, particularly in contexts like the Global South, where smallholder farmers represent vital yet often underdeveloped suppliers (Meinlschmidt et al., 2018). Traditional supplier development processes rely heavily on direct interactions between buyers and suppliers to build trust, foster commitment, and align expectations. Signaling theory, used in the context of sustainable supply chain management (Thomas et al., 2021), posits that, in conditions of information asymmetry, signals serve as mechanisms to reduce uncertainty and build trust (Latif and Vang, 2021). In supplier development, digital tools can act as credible signals, enabling buyers to communicate trustworthiness, commitment, and expectations to potential suppliers, even without direct interactions. By providing smallholder farmers with access to buyer videos, digital exposure can reduce perceived risks and foster trust, thus enhancing supplier commitment. However, signaling theory has yet to fully explore the dynamics of digital signaling and its effectiveness in cross-cultural supply chains, where trust and alignment must be built without

physical proximity. This study extends signaling theory by operationalizing digital buyer exposure as a novel signaling mechanism, contributing insights into its role in reducing uncertainty and fostering trust across spatial and cultural divides.

Relational theory emphasizes the importance of trust and commitment as relational governance mechanisms in sustaining long-term partnerships (Dyer and Singh, 1998; Dyer et al., 2018; Huang et al., 2022). While traditionally applied to direct buyer-supplier relationships, its applicability in digitally mediated and racially diverse contexts remains underexplored. By investigating how digital buyer exposure fosters commitment, this study challenges the assumption that relational governance is dependent on face-to-face interactions, extending the theory to digital and cross-cultural domains. Theories on signaling and relational contracting have a complementary view through which to interpret social responsibility through supplier commitment in a supply chain: signaling theories as they overlap and overlap within relations. It is reasoned by the signaling logic that buyer exposure in the digital form can decrease the information asymmetry and, in doing so, induce trust development. Relational contracting theory contextualizes this process within the structure of larger governance frameworks that reinforce exchange relations over long-term exchange. And using the framework outlined above from an integrated perspective, racial differences are conceived as potential boundary conditions that can give rise to different interpretations of signals. This synthesis offers a guide to forming hypotheses. The hypothesis is about whether exposure to digital buyers can substitute for face-to-face interchanges in trust-creating processes. To this study, the supplier commitment is the expressed intention of the supplier to enter an economic transaction with the buyer in the future. Consistent with previous studies in the area of relationship marketing and supply chain management, commitment is defined as the behavioral intention for maintaining and investing in an exchange relationship (Morgan and Hunt, 1994; Gundlach et al., 1995). We predict that exposure to a digital buyer influences the provider to be more committed according to signaling theory. In line with this perspective, we operationalize supplier commitment as willingness to sell coffee flowers to the social enterprise following buyer exposure.

Hypothesis 1. Potential suppliers exposed to a buyer video from a social enterprise will demonstrate greater commitment to becoming suppliers compared to those not exposed.

This hypothesis introduces digital signaling as an abstract mechanism, expanding signaling theory by demonstrating its applicability in fostering trust and commitment in global supply chains characterized by physical and cultural distance.

In global supply chains, racial dynamics can influence how signals are received and interpreted by suppliers. Theories of cross-cultural management suggest that sociocultural factors, including race, affect perceptions of trustworthiness and fairness (Blount and Li, 2021; Frimpong et al., 2021). Relational contracting theory also postulates (in a way) the symmetry of relational mechanisms, but racial differences potentially also create perceptual asymmetries that can condition how trust is established. In this regard, the study shows the way that these asymmetries could condition the effectiveness of digital signals in fostering supplier commitment and generalizes the relational contracting theory to account for sociocultural heterogeneity in socially responsible global supply chains. In contexts where there are substantial racial disparities, prospective suppliers may perceive higher risks associated with engaging in the relationship (e.g., fears of exploitation or perpetuation of historical inequities). Such perceptions could shape attitudes toward digital signals and mitigate the positive effects of digital exposure on trust and commitment, calling for a consideration of sociocultural variables in mechanisms of relational governance. Combining signaling and relational perspectives, we delve even deeper into whether racial asymmetry conditions the effectiveness of digital signals.

Hypothesis 2. Racial differences between buyers from social enterprises and smallholder farmers may attenuate the positive effect of digital buyer exposure on supplier commitment.

This hypothesis contributes to the theoretical discourse by identifying racial asymmetry as a moderating mechanism in relational contracting, emphasizing its implications for trust and commitment in racially diverse supply chains.

3. Methodology

3.1. Research design

This study employs a controlled field experiment to investigate the impact of digital buyer exposure on smallholder farmers' commitment to selling coffee flowers. The experiment was conducted in Uganda, with participants randomly assigned to either the treatment group (exposed to a buyer video) or the control group (not exposed). Field experiments are particularly useful for addressing real-life problems due to their high external validity (Duflo, 2006; Duflo et al., 2008; Bertrand and Duflo, 2017).

3.2. Experimental design

The research employs a field experiment methodology. The field experiment is incorporated into a real-world supplier development intervention orchestrated by a small social enterprise headed by a white Western woman. The social enterprise has an HQ in a Western country and a subsidiary in Uganda. As alluded to above, the project was financed by the Ministry for Development in a large European country. The project's other partners were a Western university and a Western producer of irrigation machines. Locally, the project teamed up with local businesses, cooperatives, and independent actors. The project aimed to introduce the coffee flower as a commercial product, which the smallholder farmers could improve their livelihood from picking (i.e., an extra revenue stream). To ensure a guarantee in the future, the project focuses on introducing regenerative agricultural practices to the local target groups. In addition, the project designed a global supply chain for distributing the coffee flower and collaborated with global buyers in the West to ensure a demand for the coffee flower. More specifically, the field experiment is incorporated into the training of farmers in regenerative farming practices. The training had two components: training of trainers and trainers training of other farmers. The first training targeted 500 farmers and the latter 10,000. The trainers were ordinary small-scale farmers. The trainers were the target of the field experiments. The Western university administered the training of trainers as part of the 'research leg' of the project. The team included various competencies ranging from a human/development geographer, a science and technology researcher, and an anthropologist. All were experienced in delivering research from training. This study employs a 2×2 between-subjects field experiment designed to examine the influence of buyer exposure and racial dynamics on the commitment of potential suppliers (smallholder farmers) to sell coffee flowers in the Global South context (De Quidt et al., 2018). The two independent variables are:

1. Buyer exposure:
 - **Video:** Participants watched a video featuring a representative of the social enterprise. Two versions of the video were produced, identical in script, structure, length, and informational content, but differing in the visible racial identity of the buyer.
 - **No Video:** Participants will not watch the buyer video
2. Racial dynamics:
 - **Same Race:** The buyer in the video is of the same race as the participants (**black**)
 - **Different Race:** The buyer in the video is of a different race than the participants (**white**)

The racial condition was realized by the buyer being presented as visible in the video stimulus. This manipulation was an inherent aspect of the video-exposure treatment and varied only across video versions. In the "different-race" condition, the buyer was a White Western representative of the social enterprise, and in the "same-race" condition, the buyer was a Black representative matching the racial background of the participating farmers. Across racial conditions, the script, informational content, tone, and structure of the video were the same; only the buyer's identity changed. This meant that any observed differences could be explained by perceived racial asymmetry, not any specific disparity in the content of information being delivered. In the field setting, due to practical limitations, the implementation was performed at the cooperative level to reduce any spillover effects between participants. The racial difference was visually salient and based on observable traits. The dependent variable is the commitment of the potential suppliers to sell coffee flowers, measured by their self-reported willingness to sell.

The participants will be smallholder farmers from coffee farmer cooperatives in Uganda. Four cooperatives were selected for the study:

1. Masaka Cooperative
2. Jjongoza Cooperative
3. Kawanda Cooperative
4. Kibinge Cooperative

The assignment of the buyer exposure treatment (video or no video) will be randomly determined within each cooperative. For the racial dynamics, the buyer in the video will be either white or black. The experimental procedure consists of the following steps:

1. **Pre-treatment phase (2 weeks):** All participants complete a baseline survey on their current willingness to sell coffee flowers.
2. **Treatment phase (2 weeks):** Participants in the "Video" condition watch the buyer video. Participants in the "No Video" condition listen to a presentation by a local Ugandan representative.
3. **Post-treatment phase (2 weeks):** All participants complete a survey on their willingness to sell coffee flowers after the treatment.

The primary data collected will be the participants' self-reported willingness to sell coffee flowers, measured on a 5-point Likert scale. This will be collected both before and after the treatment.

3.3. Participants, sample, and descriptive statistics

Participants were smallholder farmers from four coffee farmer cooperatives in Uganda. Inclusion criteria included farmers actively engaged in coffee flower production. A total of 350 farmers were selected through stratified random sampling to ensure representation across different demographics. The remaining 150 farmers were not included since the sites could not be controlled, which would compromise the robustness of the design. The breakdown of participants is as follows:

- Kibinge Cooperative: 76 respondents
- Kawanda Cooperative: 36 respondents
- Jjongoza Cooperative: 93 respondents
- Masaka Cooperative Union: 145 respondent

This is a decent-sized sample size for a field experiment in the Global South context. The populations of smallholder farmers in the rural areas of Uganda are generally difficult to access, so the current sample represents a suitable group for this study. Supplier commitment is conceptualized as a relational-behavioral construct that describes the intended relationship with the supplier in the context of future economic transactions and how strong the perceived relational bond is viewed as with the buyer. As per the relational contracting theory (Dyer and Singh,

1998; Macneil, 1980; Poppo et al., 2016), commitment in interorganizational contexts also involves behavioral motivation and perceptions of reciprocal recognition and valuation under the exchange relationship. The dependent variable, supplier commitment, is operationalized as farmers' self-reported willingness to sell coffee flowers, measured on a Likert scale. Responses ranged from 1 (very unlikely) to 5 (very likely). This was, as explained above, a field experiment conducted in a real-world training setting, where the participants were expected to commit to selling the product subsequently. As such, the responses reflected their real potential to engage in selling, adding to the external validity of the study. The decision to measure willingness to sell two weeks after the treatment, rather than one week later, was driven by the need to allow sufficient time for the effects of the buyer exposure to manifest in the participants' decision-making process. This timing also aligned with the practical constraints of the field experiment, ensuring that the measurement was both timely and reflective of the participants' real-world intentions.

3.4. Randomization and groups

Participants were randomly assigned to the treatment and control groups. The treatment group consisted of farmers who were shown a video featuring a buyer from the social enterprise, while the control group did not receive any video exposure. Randomization at the group level was chosen to minimize contagion between participants.

3.5. Data collection procedures

Data was collected through structured interviews and surveys administered by trained field researchers. The buyer video was shown using portable digital devices, and participants' responses were recorded immediately after viewing. Surveys included questions on supplier commitment and perceptions of the buyer–supplier relationship. Table 1 demonstrates the concepts and related survey questions.

Supplier commitment in this study is operationalized as self-reported willingness to sell, which reflects an intention-based measure rather than observed behavior. While intention measures are widely used in behavioral and supply chain research, they may not fully capture realized economic actions due to potential intention–behavior gaps. In light of the empirical findings, racial dynamics are more appropriately conceptualized as a contextual boundary condition rather than a central moderating mechanism. This reframing aligns the theoretical positioning with the strength of the empirical evidence and avoids overextending the interpretation.

3.6. Design limitations

To address potential confounding factors, the study controlled for variables such as age, gender, and previous exposure to digital tools. The Hawthorne effect was minimized by ensuring that participants were unaware of the specific research focus. Parallel trends were assessed by comparing baseline data between the treatment and control groups. One study limitation is the potential for self-report bias in survey responses. Additionally, the findings may not be generalizable to all smallholder farmers in the Global South due to regional differences. Because treatment assignment was partially implemented at the cooperative level for practical field reasons, future research could employ fully randomized individual-level assignment to further strengthen causal inference.

While the study employs a field-based experimental approach with treatment assignment, the implementation does not fully meet the criteria of a randomized controlled trial (RCT). In particular, treatment exposure is partially clustered at the cooperative level, and only one cooperative contains both treatment and control observations. This introduces the possibility that unobserved cooperative-level characteristics (e.g., governance quality, prior buyer relationships, or social cohesion) may confound the estimated treatment effects. Accordingly,

Table 1
Survey questions and related variables.

Concepts	Survey
Digital Buyer Exposure	To what extent do you engage with buyers through digital platforms (e.g., video calls, and emails)? How regularly do you view videos provided by buyers about their expectations and requirements? How would you rate the clarity of the information provided by buyers through digital videos? How confident are you in the information provided by buyers in digital videos? How beneficial do you find digital videos in understanding buyer expectations? How inclined are you to adopt the practices recommended in buyer videos? To what degree do digital interactions with buyers affect your commitment to selling your products to them? How dedicated are you to selling your coffee flowers to the buyer featured in the video? What is the likelihood that you will continue selling your products to the same buyer in the future? How crucial is it for you to maintain a long-term relationship with the buyer?
Supplier Commitment	How prepared are you to invest in improving your production practices based on buyer recommendations? How likely are you to endorse this buyer to other farmers? How content are you with the buyer's communication and engagement efforts? To what extent do you feel the buyer values your contribution to the supply chain? How at ease are you when interacting with buyers of a different race? How much trust do you place in buyers of a different race compared to those of the same race? How frequently do you notice racial biases in your interactions with buyers?
Racial Dynamics	To what extent do you believe racial dynamics impact buyer-supplier relationships? How willing are you to engage in business with buyers of a different race? How much do you think racial differences influence your willingness to commit to a buyer? How significant is it for you that buyers understand your cultural background? How much trust do you have in the buyer featured in the video? How would you evaluate the effectiveness of the communication from the buyer?
Trust and Communication	How transparent do you perceive the buyer to be in their dealings with you? How often do you discuss your concerns and expectations with the buyer? How responsive is the buyer to your queries and feedback? To what extent do you feel the buyer supports your business growth? How much has your income changed since engaging with the buyer? How much do you believe the buyer's practices benefit your community's development? How socially responsible do you consider the buyer's practices to be? How likely are you to implement sustainable practices recommended by the buyer? How well do the buyer's practices align with your values and goals? How much do you feel the buyer's practices help in addressing historical exploitation in supply chains? How satisfied are you with the overall buyer-supplier relationship?
Economic and Social Impact	How likely are you to participate in future buyer-led initiatives? How much do digital tools can improve buyer-supplier relationships in the Global South?
General Perceptions	

the empirical design is more appropriately interpreted as a quasi-experimental field intervention, which allows for suggestive causal inference but does not fully eliminate alternative explanations (Shadish, Cook, & Campbell, 2002).

3.7. Data analysis

Descriptive statistics were used to summarize participant characteristics, and inferential statistics (e.g., *t*-tests, and regression analysis) were employed to test the hypotheses. The significance level was set at $p < 0.05$. The primary analytical method employed was a difference-in-differences (DiD) regression analysis, selected for its ability to estimate the causal effects of buyer exposure and racial dynamics on the willingness of smallholder farmers to sell coffee flowers. Interaction terms (e.g., $\text{Post} \times \text{Video}$, $\text{Post} \times \text{DifferentRace}$) were included to isolate these effects. The DiD analysis was conducted using the following regression model:

$$\begin{aligned} \text{Willingness}_{it} = & \alpha + (\beta_1 \times \text{Post}_t) + (\beta_2 \times \text{Video}_i) + (\beta_3 \times \text{DifferentRace}_i) \\ & + [\beta_4 \times (\text{Post}_t \times \text{Video}_i)] + [\beta_5 \times (\text{Post}_t \times \text{DifferentRace}_i)] \\ & + \text{Controls}_i + \varepsilon_{it} \end{aligned}$$

where:

- Willingness_{it} denotes supplier commitment (operationalized as willingness to sell) for individual i at time t ;
- Post_t is a dummy variable indicating the post-treatment period;
- Video_i indicates assignment to the digital buyer exposure condition;
- DifferentRace_i captures the racial asymmetry condition;
- $\beta_4 \times (\text{Post}_t \times \text{Video}_i)$ estimates the causal effect of digital buyer exposure (Hypothesis 1);
- $\beta_5 \times (\text{Post}_t \times \text{DifferentRace}_i)$ estimates the moderating effect of racial differences (Hypothesis 2);
- Controls_i include demographic characteristics (age, gender, prior digital exposure);
- ε_{it} is the error term

The key coefficient of interest for Hypothesis 2 is β_5 , which captures whether racial differences attenuate the treatment effect in the post-treatment period. This analysis will allow the researchers to assess the main effects of buyer exposure and racial dynamics, as well as their interactive effects, on the commitment of potential suppliers to sell coffee flowers.

3.7.1. Data analysis strategy and validation

Data was analyzed using statistical software (e.g., SPSS, Stata). Descriptive statistics were used to summarize participant characteristics, and inferential statistics (e.g., *t*-tests, regression analysis) were employed to test the hypotheses. The significance level was set at $p < 0.05$. The primary analytical method employed was a difference-in-differences (DiD) regression analysis, selected for its ability to estimate the causal effects of buyer exposure and racial dynamics on the willingness of smallholder farmers to sell coffee flowers. Interaction terms (e.g., $\text{Post} \times \text{Video}$, $\text{Post} \times \text{DifferentRace}$) were included to isolate these effects.

The primary analytical method employed in this study was a difference-in-differences (DiD) regression analysis, selected for its ability to estimate the causal effects of buyer exposure and racial dynamics on the willingness of smallholder farmers to sell coffee flowers. The DiD approach allowed us to compare changes in willingness to sell between pre-treatment and post-treatment phases across different experimental conditions. The analysis employed DiD regression to test for the main effects of buyer exposure and the moderating effects of racial dynamics on willingness to sell. Interaction terms (e.g., $\text{Post} \times \text{Video}$, $\text{Post} \times \text{DifferentRace}$) were included to isolate these effects. Additionally, we

conducted robust checks, including an analysis of potential biases from the Hawthorne effect, to ensure the reliability of the results. By assessing the minimal impact of the Hawthorne effect and confirming parallel trends across treatment groups, we bolstered the internal validity of our findings. Data was collected with a minimum time gap to ensure that time-sensitive factors were not impacting the effect of exposure to different types of videos among the two groups.

The initial selection of the four cooperatives was not fully random, as ensuring the groups had similar characteristics was necessary. However, the assignment of the buyer exposure treatment (video or no video) within each cooperative was randomized. Approximately half of the Masaka Cooperative participants watched the buyer video, while the other half listened to the local Ugandan representative. At the Jjongoza and Kawanda Cooperatives, all participants watched the buyer video. At the Kibinge Cooperative, no participants watched the video, and they only listened to the local representative. To check the effectiveness of the buyer exposure manipulation, we asked participants in the Masaka Cooperative about their exposure to the video. Those who answered “yes” to watching the video were classified as the video exposure group, while those who answered “no” were classified as the no-video exposure group. To ensure the validity of our findings, we conducted several robustness checks. First, we examined the duration of the pre-treatment and post-treatment periods. Although the post-treatment period was limited to 3 weeks due to a system change by the company, this duration is still comparable to other field experiments in similar farming settings. Additionally, we checked for potential confounding factors, such as differences in implementing the training sessions across the cooperatives. While there were some minor variations, the standardized training materials and efforts to minimize trainer biases suggested these factors did not significantly influence the results.

4. Results

The total sample consisted of 350 smallholder farmers from four cooperatives in Uganda: Kibinge Cooperative (76 respondents), Kawanda Cooperative (36 respondents), Jjongoza Cooperative (93 respondents), and Masaka Cooperative Union (145 respondents). The participants were divided into treatment and control groups based on exposure to a buyer video and the racial dynamics of the buyer. Table 2 compares pre-treatment and post-treatment willingness to sell, illustrating the main effects of buyer exposure (Hypothesis 1).

Descriptive statistics in Table 1 show that farmers exposed to the buyer video exhibited a higher mean willingness to sell coffee flowers (3.25) compared to those not exposed (2.85), indicating a positive effect of video exposure on willingness to engage in selling. Standard deviations of 0.75 and 0.90 for the video and no video groups suggest some variability in responses within each group. With equal sample sizes of 175 in both groups, these findings lay the groundwork for further analysis of the impact of buyer exposure and racial dynamics on farmers' economic decisions within the coffee supply chain.

4.1. Treatment effects

The treatment effects of buyer exposure and racial dynamics on willingness to sell coffee flowers are presented in Table 3.

Table 3 shows the treatment effects regarding buyer exposure and racial dynamics on willingness of smallholder farmers to sell coffee flowers. As for the contrast between Video vs. No Video exposure,

Table 2
Descriptive statistics.

Variable	Video Exposure	No Video Exposure	Total
Mean willingness to sell	3.25	2.85	
Standard deviation	0.75	0.90	
Sample size	175	175	350

Table 3

Treatment effects.

Video vs. No Video					
Treatment Comparison	Mean Difference (Post - Pre)	Standard Error	t-value	p-value	95% CI
Video vs. No Video	1.65	0.10	16.50	<0.001	(1.46, 1.84)
Race vs. Different Race					
Treatment Comparison	Mean Difference (Post - Pre)	Standard Error	t-value	p-value	95% CI
Same Race vs. Different Race	0.30	0.10	3.00	0.003	(0.10, 0.50)

participants showed a significant difference of 1.65 on willingness to sell coffee flowers between those who watched the buyer video and those who had no exposure. This discrepancy is statistically significant, with a t-value of 16.50 and very low p-value of less than 0.001, indicating evidence that the acceptance of buyer video significantly increased the willingness of farmers to sell. A 95% confidence interval (CI) of (1.46,1.84) indicates strong robustness in this finding, as it would be considered a precise estimation of the effect of treatment. Another striking result is the comparison of the Same Race vs. Different Race scenarios. Here, the average difference on willingness to sell coffee flowers between farmers who were exposed to a buyer of the same race and farmers who were exposed to a buyer of a different race is 0.30. Although it is lower than Video vs. No Video, this difference is still statistically significant (t-value = 3.00, p-value = 0.003, 95% CI = (0.10, 0.50)). It suggests that descriptive differences are present among racial groups but does not check for the moderation of impact. The table on race comparison in Table 3 shows the descriptive mean differences and does not imply a causal moderation test. The formal moderation test is performed with DiD interaction term shown in Table 4. Collectively the results reinforce the importance of digital buyer exposure for early-stage supplier commitment. While minor descriptive differences manifest under different racial conditions, causal analysis suggests that racial asymmetry does not significantly influence the treatment effect.

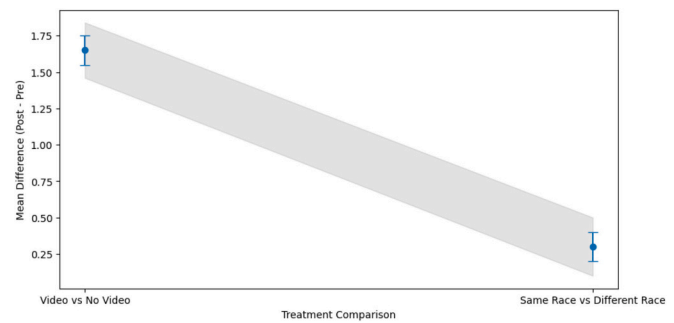
Fig. 1 represents the treatment effects on the willingness of smallholder farmers to sell coffee flowers, as discussed in the previous chat. Here's an interpretation based on the information provided. The point higher on the mean difference scale indicates that farmers exposed to the buyer video had a significantly higher willingness to sell coffee flowers compared to those not exposed. This is supported by a mean difference of 1.65, a high t-value of 16.50, and a very low p-value (<0.001), suggesting a strong positive effect of video exposure. The lower point suggests a smaller, yet statistically significant, increase in willingness to sell when farmers were exposed to a buyer of the same race compared to a different race. The mean difference here is 0.30, with a t-value of 3.00 and a p-value of 0.003, indicating that racial dynamics moderately affect

Table 4

DiD regression results.

Variable	Coefficient	Std. Error	p-value
Post	0.2	0.1	0.04
Video	0.3	0.15	0.02
DifferentRace	-0.2	0.2	0.3
Post $\times$ Video	0.25	0.12	0.05
Post $\times$ DifferentRace	-0.15	0.18	0.4
R ²	0.467		
Adjusted R ²	0.453		

Post indicates the post-treatment period. Video indicates assignment to digital buyer exposure. DifferentRace indicates racial asymmetry between buyer and supplier. The key coefficient for Hypothesis 1 is $\beta(\text{Post} \times \text{Video})$, and the key coefficient for Hypothesis 2 is $\beta(\text{Post} \times \text{DifferentRace})$.

**Fig. 1.** Impact of buyer video exposure on farmers' willingness to sell coffee flowers.

selling willingness. The error bars or confidence intervals shown in the figure reflect the variability in responses within each group and the precision of the treatment effect estimates.

4.2. DiD regression analysis

A difference-in-differences regression analysis was conducted to estimate the effects of buyer exposure and racial dynamics on willingness to sell coffee flowers. The DiD regression results were presented in Table 4.

Results from a difference-in-differences regression analysis on buyer exposure and racial dynamics on smallholder farmers' willingness to sell coffee flowers are presented in Table 4. The coefficient for Post ($\beta = 0.20$, $p = 0.04$) implies a general increase in willingness to sell during the post-treatment period. The main effect of Video reflects baseline differences between groups, and the interaction term (Post $\times$ Video) captures the causal treatment effect. Most significantly the interaction term Post $\times$ Video is positive and significant ($\beta = 0.25$, $p = 0.05$) which further supports Hypothesis 1. This suggests that exposure to digital buyers increases supplier commitment from a post-treatment standpoint. By contrast, the interaction term Post $\times$ DifferentRace is negative but not statistically significant ($\beta = -0.15$, $p = 0.40$). So: Hypothesis 2 is false. Descriptive comparisons indicate some subtle differences across racial conditions, the DiD interaction term, however, is not statistically significant, which suggests no evidence of moderation. And finally, the lack of a meaningful interaction effect indicates that the digital signaling effect is robust across racial asymmetries in the present context. Although racial influences might play a part in shaping perceptions, they have not significantly dulled the treatment effects of digital buyer exposure. The lack of a statistically significant interaction effect indicates that digital signaling effects are robust across racial asymmetries in this case. The model accounts for a large amount of variance in willingness to sell ($R^2 = 0.467$; Adjusted $R^2 = 0.453$) indicating consistent explanatory power without a hint of overfitting.

In summary, these DiD regression results prove that exposure to buyer video positively influenced smallholder farmers' willingness to engage in coffee flower-selling activities. The findings underscore the effectiveness of targeted interventions like informational videos in stimulating economic activities among agricultural communities. Additionally, while racial dynamics did not show a significant moderating effect in this context, further exploration into nuanced interactions between buyer characteristics and farmer behaviors could enhance future interventions to foster inclusive economic growth in rural areas.

Fig. 2 illustrates the effects of different variables on farmers' willingness to sell. The positive coefficients for Post_Treatment and Buyer_Exposure_Video suggest that both the passage of time and exposure to the buyer video positively influenced farmers' desire to sell. Conversely, the negative coefficient for Different_Race implies that racial dynamics may have had a slight negative impact, although this was not statistically

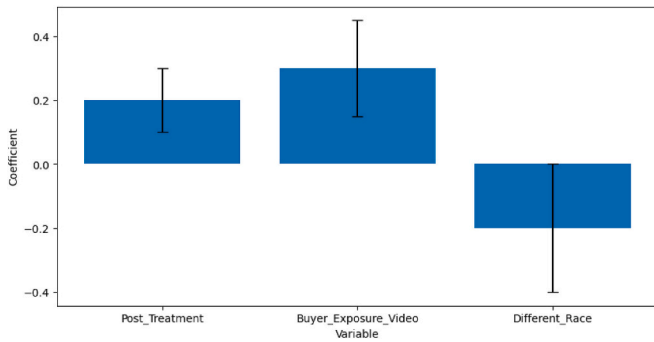


Fig. 2. DiD regression results on willingness to sell coffee flowers.

significant. Overall, the graph supports the conclusion that buyer video exposure is an important positive factor in farmers' selling decisions, while racial dynamics have a lesser effect.

4.3. Robustness checks

The results support [Hypothesis 1](#), indicating that potential suppliers exposed to the buyer video (*Buyer Exposure*) are significantly more willing to sell than those not exposed. However, [Hypothesis 2](#), which proposed that racial dynamics (*Different Race*) may attenuate the relationship between buyer exposure and commitment, was not supported. The results indicate a significant increase in the willingness to sell coffee flowers for the group exposed to the buyer video compared to the control group. [Fig. 3](#) plots the pre-treatment trends for willingness to sell coffee flowers across treatment and control groups, confirming the parallel trends assumption ([Kwasnitschka et al., 2024](#)).

[Fig. 3](#) confirms the assumption of parallel trends, crucial for causal inference in difference-in-difference analysis. It shows that before the treatment, both the Video Exposure and Race Dynamics groups had a similar willingness to sell coffee flowers. This similarity suggests that any post-treatment differences in outcomes can be attributed to the treatment itself rather than pre-existing differences between the groups.

Analysis of potential biases from the Hawthorne effect showed minimal impact on participant behavior during the study period ([Franke et al., 2024](#); [Kwasnitschka et al., 2024](#)).

[Fig. 4](#), with a single red bar reaching up to the 0.2 mark on the y-axis, indicates that the Hawthorne effect, where participants alter their behavior due to the awareness of being observed, had a minimal impact on participant behavior during the study period. An effect size of 0.2 is generally considered small, suggesting that any changes in behavior were not substantial and that the study's results are likely not significantly skewed by this effect. This supports the reliability of the study's findings, as the Hawthorne effect did not heavily influence the outcomes.

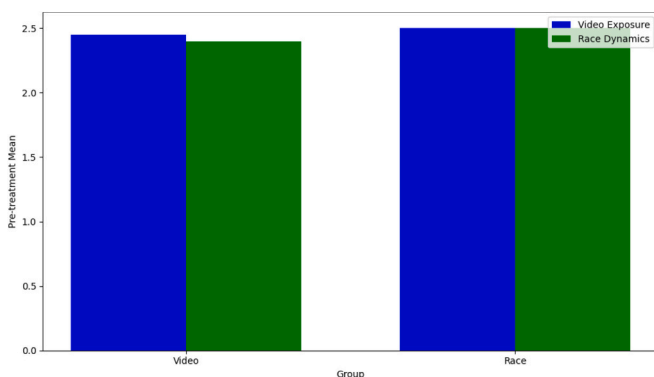


Fig. 3. Hypothetical pre-treatment means being willing to sell coffee flowers.

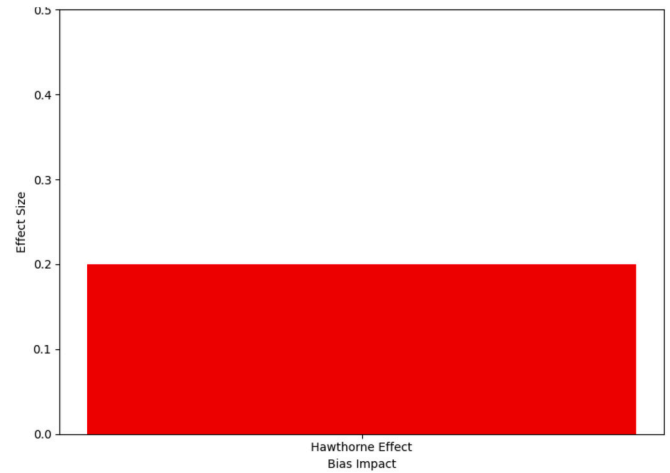


Fig. 4. Minimal impact of potential biases from the Hawthorne effect on participant behavior.

5. Discussion

This study shows a clear-cut impact of digital buyer exposure and its effect on supplier commitment in Global South. The DiD analysis validates that video-based interaction increases smallholder farmers' willingness to engage in economic exchange. These results support the first hypothesis and are consistent with prior research suggesting that buyer exposure can strengthen relational commitment by clarifying expectations and reducing uncertainty in supplier relationships. ([Ayoubi et al., 2023](#); [Leppelt et al., 2013](#); [Verghese et al., 2020](#)). Crucially, this study does not build on recent case-based or survey evidence (as most of the existing literature has done), rather it provides field-experimental validation in socially responsible food supply chains in Africa. On the other hand, the second hypothesis that racial differences might interfere with the association between buyer exposure and supplier commitment was rejected by the interaction term in the DiD analysis. Although minor descriptive differences were observed across racial conditions, the DiD interaction term was not statistically significant, suggesting that racial asymmetry does not attenuate the treatment effect. While the results indicate that digital buyer exposure increases willingness to sell, the current design does not allow for direct identification of the underlying causal mechanisms. Several plausible explanations emerge from prior literature:

- First, exposure may act as a signal of buyer credibility and commitment, consistent with signaling theory, reducing perceived opportunism.
- Second, it may enhance trust formation by humanizing the buyer and reducing relational distance.
- Third, it may improve information clarity and perceived economic opportunity, thereby reducing uncertainty.

Future research should explicitly test these mechanisms through mediating variables or experimental manipulations. The findings should therefore be interpreted as indicative of a causal relationship, rather than definitive causal proof. While the observed differences between treatment and control groups are consistent with a treatment effect of digital buyer exposure, residual confounding cannot be entirely ruled out due to the partial randomization structure. Although the study was theoretically motivated by post-colonial and racial dynamics, the empirical results provide limited support for strong race-based effects. This suggests that digital buyer exposure may operate through more general relational or informational mechanisms that transcend racial identity in this context.

5.1. Theoretical implications

This study adds to various theoretical ideas in global socially responsible supply chains. First, it advances signaling theory and demonstrates that digitally mediated buyer exposure is capable of effectively signaling trustworthiness and intent in racially diverse contexts (Ayoubi et al., 2023; Leppelt et al., 2013; Thomas et al., 2021; Latif and Vang, 2021). Second, it contributes to relational contracting theory by establishing that digital tools may catalyze early-stage commitment formation and reduce relational uncertainty in socially responsible supply chains operating in geographically and culturally diverse environments (Attaran, 2020; Moshtari and Safarpour, 2024; Latif et al., 2023; Huang et al., 2022, 2024). Third, by examining how sociocultural factors might function as perceptual filters in the interpretation of digital signals (Frimpong et al., 2021; Chugh et al., 2024; Wang et al., 2020), the study offers a more nuanced portrayal of how race interacts with signaling and relational mechanisms in Global South supplier development.

The non-significant moderation impact provides valuable theoretical implications. First, it appears possible that digital signaling mechanisms can detract from the importance of surface-level cues (e.g., race) while forming the early-stage supplier commitment. Suppliers may rank perceived economic opportunity over identity-based heuristics if information is clearly framed and buyer intentions are clear. This is in accordance with signaling theory's focus on salient signals that decrease uncertainty in exchange relations (Spence, 1973; Connelly et al., 2011). Second, we contribute to the development of relational theory in intercultural settings. Relational contracting also highlights trust, interdependence, and the governance systems needed to maintain long-term collaborations (Dyer and Singh, 1998; Macneil, 1980; Poppo et al., 2016). The current results indicate that sociocultural asymmetries might be more potent in relational governance over time than for initial commitments based on informational signals. In that regard, it seems that digital exposure strengthens early-stage relational commitment even in the presence of racial asymmetries. Such findings are especially pertinent in Global South settings impacted by historical asymmetries and postcolonial legacies (Tsing, 2009; Stevano, 2023; Zoogah et al., 2015). Although racial identity may impact perceptions of fairness and legitimacy (McCarthy et al., 2018; Zoogah et al., 2015; Esper et al., 2020) and empirical research indicates that racial cues affect economic decision-making (Blount and Li, 2021; Aral & Van Wassenhove, 2025), the current study shows that transparent digital communication can mitigate the impact of these biases in the early stages of supplier engagement. Confirming parallel trends and consistent findings across cooperatives, robustness reassures us that the causal interpretation of these conclusions is stronger than assumed.

5.2. Practical and societal implications

This study carries practical implications for social enterprise managers and policymakers whose task involves supply chain development in the Global South. The results indicate that mediated forms of exposure to digital buyers, including video presentations, can enhance supplier commitment and reduce uncertainty in geographically dispersed contexts (Attaran, 2020; Moshtari and Safarpour, 2024). Although sociocultural differences need to be considered (Bartel-Radic and Munch, 2023; Skarmeas and Katsikeas, 2001), outcomes showed that transparent, economically focused engagement strategies could dampen the effect of sociocultural factors early in the interaction. Beyond the immediate managerial implications, it is important to interpret these findings with an appreciation for the underlying mechanisms that remain only partially observed in this study. While digital buyer exposure appears to increase suppliers' stated willingness to engage, the results do not allow for definitive conclusions regarding whether this effect is driven by enhanced trust, improved understanding of market

opportunities, or reductions in perceived uncertainty. Prior research suggests that such interventions may operate through multiple, overlapping pathways, including signaling credibility, facilitating relational trust, and mitigating information asymmetries. From a policy and managerial perspective, this implies that digital engagement tools should not be treated as universally effective solutions, but rather as context-sensitive instruments whose impact depends on how they shape perceptions, expectations, and relational dynamics among smallholder suppliers. Accordingly, practitioners are encouraged to complement digital exposure initiatives with supportive mechanisms such as training, follow-up communication, and transparent contracting practices to reinforce and sustain their effects. From a societal standpoint, the findings highlight both the promise and the limits of digitally mediated inclusion in Global South supply chains. While low-cost digital tools can help bridge geographic and informational divides, their effectiveness is likely contingent on broader structural conditions, including digital literacy, institutional trust, and local governance capacity. Moreover, the limited empirical support for strong race-based effects in this study suggests that structural inequalities may not be easily addressed through exposure-based interventions alone. This underscores the need for a more holistic and multi-level approach to inclusive supply chain development, in which digital interventions are embedded within wider efforts to strengthen institutional frameworks, ensure fair value distribution, and empower local actors.

6. Conclusion

It is the first empirical study showing that exposure to digital buyers greatly increases supplier commitment in the context of socially responsible supply chains in the Global South. We used a randomized field experiment to demonstrate that video-based interaction is a robust signal that diminishes informational asymmetry and facilitates early-stage economic engagement. It is worth pointing out that this effect is not significantly attenuated due to racial asymmetry, contrary to expectations. This result clarifies theoretical thinking and separates the development in early-stage commitment from longer-term relational governance. By bridging signaling and relational theory within racially heterogeneous, digitally situated settings, this research informs post-colonial supplier development models. The findings serve to illustrate both to social enterprises and policy-makers the tactical relevance of digital communication channels to enable equitable and scalable supply chain collaborations. Digital buyer exposure can provide a low-cost, high-impact intervention that can help onboard suppliers and unlock underutilized value streams in the Global South. The result is a new, situationally specific and empirically-based view of the interplay between digital and sociocultural dynamics in global supplier development.

A key limitation relates to the reliance on stated intentions rather than observed transactional behavior. Future research would benefit from incorporating behavioral indicators of commitment, such as actual sales volumes, contract fulfillment rates, repeat transactions, or participation in buyer programs. Such measures would allow for a more robust validation of the observed effects and reduce concerns related to social desirability bias or hypothetical responses. The study's ability to capture racial dynamics is constrained by both measurement and design limitations. Race-related constructs are complex, socially embedded, and often require richer qualitative or longitudinal approaches to be adequately understood. Future research should employ more nuanced operationalizations and mixed-method approaches to better capture these dynamics. The study adopts a quantitative field-based design, which provides valuable evidence on treatment effects but offers limited insight into the social and cognitive processes underlying observed behaviors. Given the study's engagement with constructs such as trust, identity, and fairness, a mixed-method approach would have been

particularly valuable. Future research could build on this work by incorporating semi-structured interviews, focus groups, or ethnographic methods, enabling a deeper understanding of how smallholder farmers interpret and respond to digital buyer exposure.

CRediT authorship contribution statement

Jan Vang: Writing – review & editing, Supervision, Project administration, Investigation, Funding acquisition, Conceptualization. **Seyed Pendar Toufighi:** Writing – review & editing, Writing – original draft, Validation, Methodology, Formal analysis. **Iman Ghasemian Sahebi:** Writing – review & editing, Writing – original draft, Visualization, Software. **Helene Balslev Clausen:** Writing – review & editing, Resources, Investigation, Data curation. **Idongesit Williams:** Writing – original draft, Resources, Data curation.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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Data availability

Data will be made available on request.

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